

**Public Works Division  
Indiana Department of Administration  
L. Thomas Coulter, Director**

Designer Manual  
revised 9/05

## TABLE OF CONTENTS

I.	GENERAL INFORMATION.....	4
II.	DEFINITIONS .....	4
III.	THE STATUTORY BASIS OF THE PUBLIC WORKS DIVISION.....	5
IV.	AGENCY/INSTITUTION INITIATION OF CONSTRUCTION PROJECTS.....	5
V.	DESIGNER SELECTION AND NOTIFICATION PROCESS .....	5
VI.	DESIGNER'S FEE PROPOSAL .....	7
VII.	DESIGNER'S ADMINISTRATIVE REQUIREMENTS.....	7
VIII-A.	THE DESIGN PROCESS ( <b>Projects with Architectural Emphasis</b> ) .....	7
A.	General .....	7
B.	Programming.....	8
C.	Schematic Design .....	8
D.	Design Development.....	9
E.	Construction Documents.....	10
VIII-B.	THE DESIGN PROCESS ( <b>Projects with Engineering Emphasis</b> ) .....	11
A.	General .....	11
B.	Programming.....	11
C.	Schematic Design .....	12
D.	Design Development.....	12
E.	Construction Documents.....	13
IX.	THE BIDDING PROCESS .....	14
A.	Invitation.....	14
B.	Bid Documents Distribution.....	14
C.	Bidding Period.....	14
D.	Bid Submission .....	15
E.	Bid Review .....	15
F.	Contractor Selection.....	15
G.	Construction Contract Award .....	15
X.	THE CONSTRUCTION PROCESS .....	15
A.	Pre-Construction Conference .....	15
B.	Communication between the Contracting Parties.....	16
C.	Site Visits .....	16
D.	Progress Meetings .....	16
E.	Contractor's Submittals to Designer .....	16
F.	Contractor's Progress Billing.....	16
G.	Changes in the Work.....	17
XI.	SUBSTANTIAL COMPLETION/OCCUPANCY.....	17
XII.	CONTRACT CLOSEOUT .....	17
XIII.	POST-CONSTRUCTION WARRANTY REVIEW .....	18
XIV.	DESIGNER EVALUATION.....	19

## I. GENERAL INFORMATION

A. This Designer Manual explains what Public Works Division expects from private design firms for design and construction of our projects. DAPW is an active and participatory owner concerned with high quality sustainable design at reasonable cost with long-term efficiency, effectiveness, and durability of its construction projects. The Designer is expected to share in these objectives.

B. Although this manual is written to include the scheduling and milestones of an architectural project, engineering projects and special projects will follow a similar schedule with appropriate modifications. This manual will be updated as needed. Designers are encouraged to suggest improvements.

C. Supplementary information may be found in the *DAPW Standards for Design and Construction*. The Standards are a guide to preparing contract documents that reflect the priorities of Public Works and its customer Agencies.

## II. DEFINITIONS

A. "Contractor" is the entity that has entered into, or seeks to enter into, a construction or maintenance contract with DAPW.

B. "DAPW" is the Public Works Division of the Indiana Department of Administration (IDOA). DAPW acts as the Owner for construction projects for Indiana state agencies and institutions. **DAPW is located at 402 West Washington Street, Room W467, Indianapolis, Indiana 46204 and can be reached by calling (317) 232-3000.** The Public Works Internet address is [www.in.gov/idoa/pwd](http://www.in.gov/idoa/pwd)

C. "DAPW Project Manager" is the prime authority for the contract administration, coordination, and progress of each project. He (She) manages the project for the DAPW Director in accordance with DAPW policies and procedures. DAPW provides technical, financial, and administrative advice and assistance as needed.

D. "Designer" is the Architect, Engineer, or other design professional holding the prime design agreement with DAPW and his/her sub-consultants. The Designer will act as the Owner's representative during the construction phase.

E. "Designer of Record" is the registered professional Architect, Engineer, or other registered design professional who directly supervises and is in responsible charge of the design, and whose signature and seal are affixed to the Instruments of Service .

F. "Owner" is the State of Indiana, represented by the Commissioner of the Department of Administration, who is acting through the DAPW Director.

G. "Owner's Site Representative" is the Department of Administration employee who observes construction activities on some Public Works projects.

H. "Person" is any association, corporation, limited liability company, fiduciary, individual, joint stock company, joint venture, partnership, sole proprietorship, or other private legal entity.

I. "Project Manual" is the bound volume containing bid requirements, general requirements and technical specifications, along with any addenda or corrections, for a project.

J. "Public Works contract" or "contract" is a contract between DAPW and a person for the performance of some work or service related to the completion of a public works project for a governmental body.

K. “State Architect” and “State Engineer” are registered professional DAPW officials who perform administrative work related to DAPW private design contracts as well as in-house design and construction.

L. “RFI” is a request for information; “RFP” is a request for proposal; “ASI” is an architect’s (or engineer’s) supplemental instruction.

Additional definitions will be found where the subject matter occurs in the text.

### **III. THE STATUTORY BASIS OF THE PUBLIC WORKS DIVISION**

The Public Works Division was created by the Indiana Legislature in 1961. This authority is now codified in 4-13.6-3 of the *Indiana Code*. According to Section 2 of this chapter, the division “shall: (1) prepare or supervise preparation of construction documents for public works projects; (2) approve construction documents for public works projects; (3) advertise for bids for public works contracts; (4) recommend to the commissioner award of public works contracts; (5) supervise and observe all work relating to public works projects; (6) recommend to the commissioner approval of any necessary lawful changes in contract documents relating to a public works contract that has been awarded; (7) approve or reject estimates for payment; (8) accept or reject a public works project; and (9) administer this article.” These responsibilities are further detailed in 25 IAC 2 of the *Indiana Administrative Code*.

### **IV. AGENCY/ INSTITUTION INITIATION OF CONSTRUCTION PROJECTS**

A. An “Institution” is a State facility established to execute a particular mission of State government. An “Agency” is the entity that manages multiple institutions with a similar mission. Public Works supports twelve Agencies through capital construction, preventative and routine maintenance and emergency repairs.

B. An Institution provides its Agency with a summary of the desired work, an explanation of why it is necessary, and a realistic cost estimate based on the summary.

C. Agencies review the project requests from the Institutions and together with Agency level requests, include a capital improvement request as part of an overall budget submittal to the Legislature. Following the legislative process, the overall list of projects is reviewed, edited and approved as part of the biennium budget process.

D. During the biennium, the Agency acts on the approved Institution’s request by preparing, signing, and submitting the *Project Request Form* (DAPW 116) to the Department of Administration.

E. The Department of Administration and Public Works Division review the feasibility of the project and its cost estimate. If the project is deemed feasible, the Department signs and forwards the *Project Request Form* to the Legislative Budget Committee.

F. The Legislative Budget Committee reviews the project and examines whether sufficient funding is available. If so, it signs the *Project Request Form* and returns it to DAPW.

### **V. DESIGNER SELECTION AND NOTIFICATION PROCESS**

A. DAPW will determine whether the design should be performed by DAPW personnel or a private design firm. This decision is based upon the size and complexity of the desired project. If a private designer is to be chosen, DAPW nominates three qualified and capable firms to the IDOA Commissioner who makes the final selection.

B. Private designers seeking to work for the State of Indiana must be pre-qualified by the Public Works Certification Board. The *Application for Qualification Certificate for Architects, Engineers, and Others Performing Professional Services* is available from DAPW. The application must be filled out completely. It contains questions concerning the type of business and its ownership, insurance coverage, list of registered professionals with educational background and professional experience, types of past projects, services provided, and number of employees. A notarized affidavit is also required. The

Certification Board will review applications within 45 days of receipt. To be nominated for a project, the designer must be pre-qualified in the category of work that forms the major portion of the project. For example, the designer of a building must be pre-qualified in the architecture category and the designer of a sewage treatment plant must be pre-qualified in the sanitary engineering category.

C. Sub-Consultants must be pre-qualified by the Public Works Certification Board and must be approved in writing by the DAPW Director.

D. If a private Designer is selected, he/she will be notified by mail and asked to contact the State Architect, State Engineer, or DAPW Project Manager to review the scope of the project and establish the basis for a fee proposal. The Designer will then be introduced to the appropriate Institution personnel by the DAPW Project Manager.

## **VI. DESIGNER'S FEE PROPOSAL**

A. The Designer's basic fee proposal shall consist of a lump sum amount for all of the Designer's work as indicated in this document and detailed in the *Owner-Designer Agreement* (DAPW 103). To prepare the proposal, include all activities described in this document, miscellaneous printing, milestone submittal printing, postage, telephone expenses, travel expenses and all other overhead and profit. Review the sections concerning milestone reviews during design and site visits during construction for specific requirements and include all anticipated expenses in the lump sum fee.

B. The Designer shall provide hourly rates for technical and support staff for use as a basis of fees for changes in scope. These rates will be included in the *Owner-Designer Agreement* (DAPW 103). For change orders, the Designer shall submit a breakdown indicating the number of additional hours for technical and support staff using the hourly rates to calculate costs. This breakdown must be accompanied by the *Designer Contract Change Order Request* (DAPW 8).

C. DAPW will include an allowance in the contract for reimbursable expenses such as soil borings, site surveys, Department of Fire and Building Services plan review, scheduling, and printing of the Bidding Documents and the Project Record Documents. The Designer may add 5 percent to reimbursable expenses for administrative costs.

Other permits or approvals may need to be obtained in other cases such as IDEM, IDNR, or from Historic Preservation.

D. The Designer's fee proposal should include the following:

1. lump sum basis fee
2. suggested amount for reimbursable expenses based on the anticipated need for special information or services (soil borings, surveys, etc.)
3. milestone schedule for required submittals
4. list of sub-consultants, their responsibilities and approximate percentage of basic fee
5. list of key personnel for the Designer and sub-consultants. A registered architect or engineer must be designated as project manager and must have authority on behalf of the Designer.

E. Once the fee is established, DAPW will prepare and execute the *Owner-Designer Agreement* (DAPW 103) and issue it to the Designer accompanied by a Purchase Order. Allow time for this process to occur.

## **VII. DESIGNER'S ADMINISTRATIVE REQUIREMENTS**

A. All communication between the Designer and DAPW shall be recorded in writing and shall include the project name and the Public Works Project Number in its entirety. All forms for reporting shall utilize duplex printing and be approved by DAPW. All communication shall be through the DAPW Project Manager unless otherwise indicated. All correspondence related to this project shall be addressed to or copied to the DAPW Project Manager.

B. The Designer shall submit the *Designer's Monthly Progress Report* (DAPW 2) indicating actual progress rather than anticipated progress. Carefully and correctly answer all questions. The maximum construction cost indicated in the *Owner-Designer Agreement* (DAPW 103) will be considered as fixed. Design for 90 percent of total construction funds, thereby allowing for a 5 percent design contingency and a 5 percent construction contingency. Allow for price trends that may lead to increased construction costs while preparing opinions of probable construction cost. Attach a summary statement listing the activities completed since the last report, items pending from the last report, projected progress, a comparison of scheduled progress with actual progress, and all decisions or information required. Submit two copies of the progress report to the DAPW Project Manager. Failure to submit the report could delay payment of design fees. If, at any time during the design, the project cost is expected to exceed the established project budget, stop design work and immediately notify the DAPW Project Manager.

C. The Designer shall submit two copies of each design phase presentation (milestone submittal) to the DAPW Project Manager, one copy to the Agency, and one copy to the Institution.

. The Designer may invoice for his/her work during design phases after each milestone submittal. The minimum interval for billing during subsequent phases is 30 days. The Designer must submit progress billings on *Invoice/Voucher* (DAPW 32) to the DAPW Project Manager. See the *Purchase Order* for the information necessary to complete the voucher. Submit the *Partial Payment Affidavit* (DAPW 21C) with progress payment vouchers and the *Final Payment Affidavit* (DAPW 21B) with the final payment voucher.

E. The Designer shall submit two copies of the following items to the DAPW Project Manager within one week of occurrence: record of the Designer's field observations, record of all sub-consultants' field observations, minutes of monthly progress meetings, Architect's Supplementary Instructions (ASIs), and Requests for Proposal (RFPs).

F. The Designer shall submit two copies of the following items to the DAPW Project Manager within one week of receipt: Contractor's Requests for Information (RFIs), Contractor's proposed changes, and all material test reports.

G. The Designer shall submit copies of both the Contract Documents and the Project Record Documents in electronic format. All drawings shall be submitted in AutoCAD .DWF or .PDF format in accordance with the *DAPW Cad Drawing Standards*, available on the Internet at <http://www.in.gov/idoa/pwd/cadstds.html>. All project manuals shall be prepared in Microsoft Word format. The DAPW project manager will provide specific instructions. The Designer and his/her sub-consultant shall be deemed the authors and owners of their respective Instruments of Service and shall retain all common law, statutory and other reserved rights, including copyrights.

#### **VIII-A. THE DESIGN PROCESS (Projects with Architectural Emphasis)**

##### **A. General**

Milestone Submittals are the design phase presentations. They provide DAPW, the Agency, and the Institution the opportunity to review design concepts and make recommendations, promote the use of durable, environmentally responsible materials, pinpoint code issues, other areas of concern, and verify project organization. The Designer shall use his/her professional expertise and judgment to establish the standard of quality appropriate for the project. DAPW will review this standard of quality.

DAPW desires to provide the State's institutions and agencies with projects that maximize project goals and minimize maintenance requirements. The Designer is expected to provide design details and product/material specifications that reflect low embodied energy, high recycled content technology and high performance standards. Products with a poor or unproven track record are to be avoided. The Designer must ensure that the design meets all pertinent local, State, and Federal permitting requirements in effect at the time of the bid.

To assist the designer in researching and achieving sustainable design, DAPW has included a partial listing of references for Green Building Material Resources and manufacturers in the Appendix. The designer shall select Indiana manufactured sources for building materials and products when feasible, and shall endeavor to incorporate materials of Indiana's recycling and green building products industry.

The Designer shall not proceed to a subsequent phase of design without written authorization from the DAPW Director through the DAPW Project Manager.

## B. Programming

Programming may not be necessary on all projects. The need and cost of programming will be determined during initial fee negotiations. The Programming Phase of the Design Process is intended to gather and to clarify the project requirements with all involved parties.

Designer shall visit the site or Institution and conduct an initial coordination meeting with Agency and Institution representatives. DAPW will arrange for and attend all conferences with the Agency's personnel and the Institution's representatives. Designer shall prepare a written agenda for the initial coordination meeting, including an outline of the project requirements. This meeting will be held to clarify the project requirements, review the design schedule, coordinate field activities, and to obtain input from the Agency and Institution representatives. After the initial coordination meeting, the Designer will develop meeting minutes that include a written outline of the agreed-upon project requirements and submit them to DAPW, the Agency, and the Institution. Any differing conditions or deficiencies in existing information should be identified and brought to DAPW attention at this time.

All fieldwork needed during the design of the project, such as site survey, geotechnical analyses, archaeological investigations, environmental assessments, and related activities shall be conducted during the Programming Phase. If the fieldwork is to be completed by sub consultants, the Designer shall obtain three proposals and submit them to the DAPW Director through the DAPW Project Manager for selection, and provide a recommendation for the sub consultant to be selected.

## C. Schematic Design

Schematic Design seeks to find a clearly defined, feasible concept and present it in a form that the user understands and accepts, clarifying the established program and making it possible to produce an opinion of probable cost. The Designer shall define the building's footprint so that detailed site information can be obtained to provide guidance in design and aid in controlling the construction cost and duration. The Designer will submit meeting minutes to the DAPW, the Agency, and the Institution. At this time, the Designer for review by the Institution, Agency, and DAPW shall present a minimum of the following documents.

- Site Plan
- Floor Plans
- Building Elevations
- Two or more transverse and longitudinal building sections
- One or more wall sections
- Code and life safety analysis
- Preliminary project description
- Hazardous material identification and removal procedures
- Site material and construction waste reduction
- Reuse and recycling
- Reduced energy using technologies
- Resource reduction strategies
- Indoor environmental air quality evaluation
- Evaluation of the design area and other characteristics in comparison to the program
- Opinion of probable cost using a square footage or similar method
- Renderings, models, or drawings as required, to evaluate the concept

In the case of additions or alterations to an existing facility, prepare and submit written survey reports concerning existing systems, materials, and potential problems.

MEP Schematic Design documents as a minimum shall consist of the following:

- Proposed utility service entrance locations and verification of existing utilities capacities
- Mechanical/electrical room sizes
- HVAC system narrative and preliminary construction cost opinion

The Institution, the Agency, and DAPW will review the Designer's submittal to determine the validity of the scope and the opinion of probable cost of the project. If the submittal is acceptable, DAPW will approve it in writing and authorize the Designer to proceed to the next phase of design. If DAPW determines that either the scope or the opinion of probable cost is unacceptable, the Designer shall offer recommendations for revision of the scope. The Designer shall comply with or respond to all review comments prior to beginning the next phase.

#### D. Design Development

During the Design Development Phase the designer shall seek to further define and describe all-important aspects of the project so that all that remains is the formal documentation step of construction documents. At this time the Designer for review by the Institution, the Agency, and DAPW shall present the following documents:

- Fully developed demolition and floor plans showing interfaces between existing and new construction where applicable
- Enlarged plans
- Reflected ceiling plans
- Roof plans
- Site plans
- Interior and exterior elevations
- Most wall sections
- Building sections
- Key details (including those showing interfaces between existing and new construction)
- Room finishes
- Door and window schedules
- Equipment schedules
- Accurately defined structural systems
- Detailed description of waste reduction and resource management
- Outline specifications defining systems and listing names of acceptable manufacturers
- Description of low-embodied-energy and Recycled content materials utilizing CSI *MasterFormat* numbering
- Detailed opinion of probable cost / break down the opinion of probable cost between new construction and renovation.
- Include a list of proposed add alternates (with opinion of probable cost) which may be used to compartmentalize the project's costs. Avoid the use of deduct alternates.

MEP Design Development Documents as a minimum shall consist of the following:

- Accurately defined mechanical, fire protection, plumbing, and electrical systems
- Floor plans indicating major equipment locations and enlarged equipment room layouts
- Ductwork routing
- Lighting and electrical systems layouts
- Outline specification
- Opinion of the probable construction cost



The Institution, the Agency, and DAPW will review the Designer's submittal to determine the validity of the scope and the opinion of the probable cost of the project. If the submittal is acceptable, DAPW will approve it in writing and authorize the Designer to proceed to the next phase of design. As with Schematic Design, if DAPW determines that either the scope or the opinion of probable cost is unacceptable, the Designer shall offer recommendations for revision of the scope. The Designer shall comply with or respond to all review comments prior to beginning the next phase.

Upon receipt of written authorization to proceed with the Construction Documents, the Designer shall submit permit applications to all pertinent local, State, and Federal regulatory agencies, such as the local Soil and Water Conservation District, the local Drainage Board, the Indiana Department of Natural Resources, the Indiana Department of Environmental Management, the Indiana Department of Health and the U.S. Army Corps of Engineers.

#### E. Construction Documents

Construction Documents are the drawings and specifications from which the project is built accompanied by the bidding requirements, contract forms, and contract conditions under which the project is bid and administered. They must be clear, concise, and prepared in accordance with generally accepted professional design practices. DAPW will provide forms for Bidding Requirements, Contract Forms, and Contract Conditions, which the Designer shall use without alteration. *Supplementary Instructions to Bidders*, if necessary, shall be on a separate form and coordinated with *Instructions to Bidders* (DAPW 30). The Designer for review by the Institution, the Agency, and DAPW shall present the Construction Documents and a detailed, final opinion of probable construction cost. Include fully defined add alternates and their costs.

The Institution, the Agency, and DAPW will review the Designer's submittal to determine the validity of the scope and the opinion of probable construction cost of the project. The Designer shall endeavor to make his/her submittal complete. It is not the responsibility of DAPW to provide an exhaustive review of the Designer's drawings and specifications for completeness, coordination or accuracy. DAPW will review for key features and incorporation of previous comments. The Designer shall comply with or respond to all review comments. If the submittal is acceptable, DAPW will approve it in writing. As with Schematic Design and Design Development, if DAPW determines that the scope or the opinion of probable construction cost is unacceptable, the Designer shall offer recommendations for revision of the scope. Once the Construction Documents are reviewed and approved by the Institution, the Agency, Department of Fire and Building Services, the Indiana Department of Health (when applicable), all agencies necessary to comply with Federal, State, or local codes or regulations, and DAPW, and all corrections have been made, the Designer will receive written authorization to issue them as Bidding Documents. Ensure that projects affected by Federal regulations have been thoroughly researched so that compliance will be achieved.

### VIII-B. THE DESIGN PROCESS (Projects with Engineering Emphasis)

#### A. General

Milestone Submittals are the design phase presentations. They provide DAPW, the Agency, and the Institution the opportunity to review design concepts and make recommendations, promote the use of durable, environmentally responsible materials, pinpoint code issues, other areas of concern, and verify project organization. The Designer shall use his/her professional expertise and judgment to establish the standard of quality appropriate for the project. DAPW will review this standard of quality.

DAPW desires to provide the State's institutions and agencies with projects that maximize project goals and minimize maintenance requirements. The Designer is expected to provide design details and product/material specifications that reflect low embodied energy, high recycled content technology and high performance standards. Products with a poor or unproven track record are to be avoided. The Designer must ensure that the design meets all pertinent local, State, and Federal permitting requirements in effect, and applicable, at the time of the bid.

To assist the designer in researching and achieving sustainable design, DAPW has included a partial listing of references for Green Building Material Resources and manufacturers in the Appendix. The designer shall select Indiana manufactured sources for building materials and products when feasible, and shall endeavor to incorporate materials of Indiana's recycling and green building products industry.

The Designer shall not proceed to a subsequent phase of design without written authorization from the DAPW Director through the DAPW Project Manager.

## B. Programming

Programming may not be necessary on all projects. The need and cost of programming will be determined during initial fee negotiations. The Programming Phase of the Design Process is intended to gather and to clarify the project requirements with all involved parties.

Designer shall visit the site or Institution and conduct an initial coordination meeting with Agency and Institution representatives. DAPW will arrange for and attend all conferences with the Agency's personnel and the Institution's representatives. Designer shall prepare a written agenda for the initial coordination meeting, including an outline of the project requirements. This meeting will be held to clarify the project requirements, review the design schedule, coordinate field activities, and to obtain input from the Agency and Institution representatives. After the initial coordination meeting, the Designer will develop meeting minutes that include a written outline of the agreed-upon project requirements and submit them to DAPW, the Agency, and the Institution. Any differing conditions or deficiencies in existing information should be identified and brought to DAPW attention at this time.

All fieldwork needed during the design of the project, such as site survey, geotechnical analyses, archaeological investigations, environmental assessments, and related activities shall be conducted during the Programming Phase. If the fieldwork is to be completed by sub consultants, the Designer shall obtain three proposals and submit them to the DAPW Director through the DAPW Project Manager for selection, and provide a recommendation for the sub consultant to be selected.

The Designer shall:

- Perform site visit and evaluate scope of project
- Review any existing plans / documents available from DAPW
- Determine need for additional geotechnical investigations, site surveys or existing utility locations/identifications
- Perform general overview of project's construction scope and budget

## C. Schematic Design

Schematic Design seeks to find a clearly defined, feasible concept and present it in a form that the user understands and accepts, clarifying the established program and making it possible to produce an opinion of probable cost. The Designer shall define the project's footprint so that detailed site information can be obtained to provide guidance in design and aid in controlling the construction cost and duration. The Designer will submit meeting minutes to the DAPW, the Agency, and the Institution. At this time, the Designer shall present a minimum of the following documents for review by the Institution, Agency, and DAPW:

- Field verify all data received from DAPW, as necessary, to accomplish the work on the project and obtain all other data as necessary to insure complete and proper design of the project
- Request utility locations to be marked in field and request geotechnical investigation activities
- Establish survey control points and benchmarks
- Conduct detailed field surveys and utility field reconnaissance
- Develop existing site plan of planimetric, topographic and utility features and identify all geotechnical, survey control locations, and utility information
- Develop and identify proposed site improvement, plan to include but not limited to:

- Locations of existing buildings and planned building/site improvements
  - Critical site development grades / contour / drainage features
  - Above and below underground utility improvements, relocations, connections to existing utilities, and proposed utility service entrance locations to buildings and structures
  - Existing street and parking systems, and planned improvements
  - Provide typical cross section of new road, parking improvements and other project features, as necessary to convey the design intent of the project
- Site improvement details are required only of critical issues as applicable at this stage of development
  - Provide list of anticipated specification sections (section number and title)
  - Provide opinion of probable cost broken down into major items of construction; estimate shall identify unit costs for labor, materials and profit
  - Preliminary Design Report that includes a project description, results of the fieldwork (geotechnical analyses, archeological investigation, and environmental assessments), assumptions used in the analyses, results of calculations, and a discussion of the expected permit requirements from Federal, State, and local regulatory agencies.

MEP Schematic Design documents as a minimum shall consist of the following:

- Proposed utility service entrance locations and existing available capacities
- Mechanical/electrical room sizes
- HVAC system narrative and preliminary construction cost opinion

The Institution, the Agency, and DAPW will review the Designer's submittal to determine the validity of the scope and the opinion of probable cost of the project. If the submittal is acceptable, DAPW will approve it in writing and authorize the Designer to proceed to the next phase of design. If DAPW determines that either the scope or the opinion of probable cost is unacceptable, the Designer shall offer recommendations for revision of the scope. The Designer shall comply with or respond to all review comments prior to beginning the next phase.

#### D. Design Development

During the Design Development Phase the designer shall seek to further define and describe all-important aspects of the project so that all that remains is the formal documentation step of construction documents. At this time the Designer shall present the following documents for review by the Institution, the Agency, and DAPW:

- Accomplish final design of project complete with all appurtenances to insure complete and proper design of the project
- Unless authorized for change by DAPW, the documents shall be developed in detail following the concepts presented and approved in the Schematic Design documents. Design Development documents shall include, but not be limited to, the following:
  - Existing site conditions and information
  - Detailed site improvement plan(s), including site utilities and finished grading and elevations, and adaptation of new work to existing local site conditions. If applicable, identification of contractor work limits, staging areas, temporary access drives and easements, and construction schedule requirements / limitations.
  - Plan and profile of all gravity drainage, stormwater and sanitary sewer system improvements
  - Detail sheets of all pavement, parking, walkways, pavement markings, grading, seeding, plantings, utility, erosion control, fencing and all other proposed site improvements as required.
  - Necessary plan(s), elevation(s) and section(s) of special features
  - Completed specification documents utilizing CSI *MasterFormat* specifications

- Final detailed opinion of the probable construction cost
- Include a list of proposed add alternates (with opinion of probable cost) which may be used to compartmentalize the project's costs. Avoid the use of deduct alternates.

MEP Design Development Documents as a minimum shall consist of the following:

- Accurately defined mechanical, fire protection, plumbing, and electrical systems
- Floor plans indicating major equipment locations and enlarged equipment room layouts
- Ductwork routing
- Lighting and electrical systems layouts
- Outline specification
- Opinion of the probable construction cost

The Institution, the Agency, and DAPW will review the Designer's submittal to determine the validity of the scope and the opinion of the probable cost of the project. If the submittal is acceptable, DAPW will approve it in writing and authorize the Designer to proceed to the next phase of design. As with Schematic Design, if DAPW determines that either the scope or the opinion of probable cost is unacceptable, the Designer shall offer recommendations for revision of the scope. The Designer shall comply with or respond to all review comments prior to beginning the next phase.

Upon receipt of written authorization to proceed with the Construction Documents, the Designer shall submit permit applications to all pertinent local, State, and Federal regulatory agencies, such as the local Soil and Water Conservation District, the local Drainage Board, the Indiana Department of Natural Resources, the Indiana Department of Environmental Management, the Indiana Department of Health and the U.S. Army Corps of Engineers.

#### E. Construction Documents

Construction Documents are the drawings and specifications from which the project is built accompanied by the bidding requirements, contract forms, and contract conditions under which the project is bid and administered. They must be clear, concise, and prepared in accordance with generally accepted professional design practices. DAPW will provide forms for Bidding Requirements, Contract Forms, and Contract Conditions, which the Designer shall use without alteration. *Supplementary Instructions to Bidders*, if necessary, shall be on a separate form and coordinated with *Instructions to Bidders* (DAPW 30). The Designer for review by the Institution, the Agency, and DAPW shall present the Construction Documents and a detailed, final opinion of probable construction cost. Include fully defined add alternates and their costs.

The Institution, the Agency, and DAPW will review the Designer's submittal to determine the validity of the scope and the opinion of probable construction cost of the project. The Designer shall endeavor to make his/her submittal complete. It is not the responsibility of DAPW to provide an exhaustive review of the Designer's drawings and specifications for completeness, coordination or accuracy. DAPW will review for key features and incorporation of previous comments. The Designer shall comply with or respond to all review comments. If the submittal is acceptable, DAPW will approve it in writing. As with Schematic Design and Design Development, if DAPW determines that the scope or the opinion of probable construction cost is unacceptable, the Designer shall offer recommendations for revision of the scope. Once the Construction Documents are reviewed and approved by the Institution, the Agency, Department of Fire and Building Services, the Indiana Department of Health (when applicable), all agencies necessary to comply with Federal, State, or local codes or regulations, and DAPW, and all corrections have been made, the Designer will receive written authorization to issue them as Bidding Documents. Ensure that projects affected by Federal regulations have been thoroughly researched so that compliance will be achieved.

## **IX. THE BIDDING PROCESS**

### **A. Invitation**

The Designer and DAPW will set a bid date and time. DAPW will prepare the *Notice to Bidders* (DAPW 28), acquire the project wage determination (if required), and furnish copies of both documents to the Designer. DAPW will also post the *Notice to Bidders* publicly and perform required legal advertisement.

The Designer may be requested to contact potential bidders in writing.

### **B. Bid Documents Distribution**

The Designer shall distribute documents to potential bidders. Limit contractors to 2 sets. A deposit must be required with a refund of 80%. The 20% refund balance accrues to the Designer to offset some or all of the cost of distribution of documents and addenda.

### **C. Bidding Period**

The bidding period will be a minimum of two weeks but will probably last three to four weeks. If the project opinion of probable construction cost is over \$150,000, the bidders must be pre-qualified by the Public Works Certification Board. Prospective subcontractors whose bids will exceed \$150,000 must become pre-qualified before commencing work on the site. Bidders must also comply with Minority Business Enterprise Program requirements as described in the bidding documents.

A Pre-Bid Conference will be held at a date and time selected by the Designer and DAPW, no later than ten days prior to the Bid Date. It may be in two parts, the first part at the DAPW office and the second part at the project site. The Designer must be present for the first part and shall conduct the second part. Minimum agenda shall include the following: Part I: Review the *Instructions to Bidders* (DAPW 30), answer administrative questions, locate the Bid Desk, describe clocking of bids, and introduce DAPW; Part II: Introduce the bidders to the site, answer technical questions, and explain site restrictions and environmental concerns and identify the important features of the project. The Designer shall take minutes and issue them, including a list of attendees and the answers to questions asked, as an addendum.

The Designer shall issue addenda no later than seven calendar days prior to the Bid Date unless that addendum extends the Bid Date. Contact DAPW immediately for the approval of an extension. Addenda shall be fully developed and parallel the format of the Project Manual and Drawings. Answer all questions and list all approved substitutions. Contact the DAPW Project Manager while assembling each addendum to see if DAPW would like to include some items. Submit a draft copy of each proposed addendum to the DAPW Project Manager for review twenty-four hours in advance of planned issue date and time. The Designer shall not require unit prices, material lists or information to be submitted with the bid.

### **D. Bid Submission**

Bidders shall deliver bids to the DAPW Bid Desk on or before the bid date and before the bid time specified. Bids shall be in accordance with the Bidding Documents. The Designer shall arrive thirty minutes prior to the bid time to permit coordination with the DAPW Bid Officer. DAPW will prepare and provide bid tabulation sheets. The bids will be read aloud publicly at DAPW and, after microfilming and copying, copies may be provided to the Designer for review.

### **E. Bid Review**

Bids will be reviewed by the DAPW Bid Officer as to form and completeness. They will also be reviewed by the DAPW Project Manager and the Designer for price and content. They will then be forwarded to the IDOA Minority Business Development Division, which will determine whether minority/women owned business requirements have been met and make a recommendation of acceptance or rejection to DAPW. Meanwhile, the Designer shall (within forty-eight hours) prepare and submit written recommendations to DAPW concerning the low base bid and any alternates.

#### F. Contractor Selection

If the bid amount is within the allocated funds for construction, the DAPW bid report will recommend award to the lowest responsible (dependable and capable) and responsive (the bid meets all requirements) bidder. If the bid amount exceeds the funds allocated for construction, DAPW, in conjunction with the Agency, will determine whether to seek additional funding or revise the project scope. The project may be reduced, revised, rebid, or canceled.

#### G. Construction Contract Award

DAPW will prepare and offer a standard contract to the recommended bidder using *State of Indiana Standard Agreement for Construction Projects* (DAPW 33). Upon completion of the contract signature process and the receipt of all required documents, the executed contract, accompanied by a *Purchase Order*, will be issued to the Contractor.

### IX. THE CONSTRUCTION PROCESS

#### A. Pre-Construction Conference

DAPW will set the date and time for the Pre-Construction Conference. The Designer and all of his/her sub-consultants are expected to attend. The conference will be at the jobsite and be conducted by the Designer. The Designer shall take notes and distribute the minutes to all concerned.

Administrative topics may include: progress meeting agendas; periodic site visits by the Designer and his/her sub-consultants; the roles of the Designer, the Contractor, the State Site Representative, and the DAPW Project Manager; subcontractor and product/material list; pre-qualification of subcontractors with contracts of \$150,000 or more; explanation of the routing of documents; submittal schedule and process; product substitutions; pre-installation conferences; interpretations; Contractor's RFIs; Designer's ASIs and RFPs; Change Orders; tests and inspections; separate contracts; employment practices; licenses, permits, and local authority inspections; weather delays; jobsite record keeping; Schedule of Values; progress payment procedures; and operation and maintenance manuals.

Site related topics may include Contractor's use of the site; Contractor's use of Owner's water, power, heat, telephone, and toilet facilities; security provisions; noise and dust control; site material demolition and construction waste management, salvage, re-use and recycling; hours of operation; parking; storage; rights-of-way; Owner-furnished equipment and furnishings; progress and final cleaning; and trash removal.

#### B. Communication between the Contracting Parties

All communication between the Designer and the Contractor shall be by electronic media whenever possible and receiver shall be responsible for printing information for his/her records. Include the Public Works Project Number. Except in an emergency, all communication between DAPW and the Contractor will be through the Designer. All communication between the Agency or the Institution and the Designer shall be through the DAPW Project Manager. Except in an emergency involving security or life safety, all communication between the Agency or the Institution and the Contractor shall be through the DAPW Project Manager.

#### C. Site Visits

The Designer and his/her sub-consultants shall make periodic site visits as follows: The Designer must visit the site weekly. One weekly visit may coincide with the monthly progress meeting. Designer's sub-consultants shall visit periodically while the work that they have designed is underway. A sub-consultant's visit may coincide with the Designer's weekly visit. The Designer shall allow for one additional site visit per month during the course of the construction contract (total of five per month). The duration of site visits shall be estimated as through the specified construction contract time plus two additional months. The Designer shall also attend all pre-installation conferences. All site visits must be coordinated with the Owner's Site Representative or the DAPW Project Manager. Twenty-four hours advance notice to DAPW is required. The Designer shall provide to the DAPW project manager a written record of all site visits. Designer and sub-consultant site visits shall be for the purpose of periodically observing the construction of the work they designed to verify general conformance with the design intent and compliance with the Contract Documents. Detailed inspection of the premises, construction equipment, safety measures, means, methods, sequence, or supervision shall remain the responsibility of the Contractor.

D. Progress Meetings

The Designer and the Owner's Site Representative shall schedule progress meetings once per month. The Designer shall conduct the meetings. Topics shall include construction progress, submittal schedule, construction schedule, RFIs, ASIs, Change Orders, progress payments to date, and inventory of stored materials. Contractor's preliminary billing will be reviewed. The Designer shall take notes and distribute the minutes to all concerned.

E. Contractor's Submittals to Designer

The Contractor shall prepare a Submittal Schedule that allows the Designer adequate time to completely review the submittals. The Designer shall review the Submittal Schedule and provide proposed revisions to the Contractor in a timely manner. The Contractor shall prepare submittals as required by the Contract Documents and in accordance with the Submittal Schedule (neither early nor late).

The Designer and his/her sub-consultants shall review the Contractor's submittals for general conformance with the design intent and compliance with the Contract Documents. Provide two copies of all reviewed submittals to the Owner's Site Representative. Reviewed submittals shall bear one of the following notations: furnish as submitted, furnish as corrected, revise and resubmit, or rejected. The Designer shall return submittals within fourteen calendar days of receipt.

F. Contractor's Progress Billing

Contractor's billing shall be on *Invoice/Voucher* (DAPW 32) accompanied by *Application for Payment* (DAPW 17), *Certificate for Payment* (DAPW 18), and *Partial Payment Affidavit* (DAPW 21A). If stored materials are involved, Contractor shall also submit the *Affidavit of Payment for Stored Materials* (DAPW 21E). A preliminary billing will be reviewed at the monthly progress meeting. If the billing is acceptable to the Designer and DAPW, the Contractor shall prepare it in final format and submit it to the Designer. The Designer shall review and act upon it within seven days. He shall certify on *Certificate for Payment* (DAPW 18) and forward these documents to the DAPW Project Manager. Certification shall be based upon the Designer's on-site observations and will be verified by the State Site Representative. Check that defective work has been corrected prior to the next billing. Retainage will be handled in accordance with the Contract Documents.

G. Changes in the Work

The Designer shall not initiate or approve variations from the Contract Documents without prior DAPW review and approval.

When a modification to the Contract Documents is necessary, the Contractor shall submit a proposal for the change accompanied by a detailed breakdown of costs, including overhead and profit and all supporting documentation. Requests for an extension of time for completion shall be made no later than 21 days after the claim-causing occurrence. Proposals should be submitted on the Contractor's and subcontractors' letterhead. The Designer shall review the proposal for reasonable cost and for accuracy (including wording and computations) and forward it to the DAPW Project Manager with a written recommendation for approval or disapproval. The Contractor's proposal and the Designer's recommendation shall be written in the present tense, regardless of whether the work has been, is being, or has yet to be done. If DAPW supports the change, it will prepare the *Construction Contract Change Order Request* (DAPW 34) and forward it to the Designer and Contractor for signature. The Contractor shall provide a *Non-Collusion Statement* (DAPW 121). If approved, DAPW will sign and distribute the Change Order.

If the proposed change is required by an emergency affecting health, life, safety or security, or delay will result in significant cost to the state, contact the DAPW Project Manager immediately for instructions.

## **XI. SUBSTANTIAL COMPLETION/OCCUPANCY**

A. "Substantial completion" is the condition of a the project when it is sufficiently completed, in accordance with the contract documents as modified by any completed change orders agreed to by the parties, so that the governmental body for which the project is intended can occupy or take possession of the project and use it as it is intended to be used.

B. When the Contractor believes that the project is substantially complete and ready for occupancy, after notifying the DAPW Project Manager, he shall ask the Designer to prepare the *Certificate of Substantial Completion* (DAPW 5). Contractor shall sign the certificate first and submit it to the Designer, accompanied by the Contractor's punch list (list of deficient work to be corrected and incomplete work to be finished). DAPW will set a review date. DAPW, the Designer and his/her sub-consultants, the Agency, and the Institution will review the project and verify the Contractor's punch list, adding Owner's and the Designer's comments. Only minor items that will not interfere with use or occupancy should remain to be corrected or completed. When this is the case, DAPW will set the Date of Substantial Completion and sign the Certificate. If major items are found, they shall be remedied by the Contractor and the documentation process will be repeated. Warranty periods and the One Year Guarantee begin at the Date of Substantial Completion.

## **XII. CONTRACT CLOSEOUT**

A. The Designer, DAPW, and the Institution make the final review to see that punch list items are completed. If they are not completed, the Contractor must correct them and the process is repeated.

B. The Contractor shall provide any specified extra materials, store them as directed by the Designer, and submit a copy of the transmittal to DAPW. Extra materials improperly transmitted will be considered not received.

C. The Designer and DAPW shall review the Operation and Maintenance Manuals and Warranties. If these items are incomplete or unsatisfactory, they shall be returned to the Contractor for correction and the process repeated. The Designer shall schedule all required personnel training through DAPW.

D. The Designer and his/her sub-consultants shall review the Contractor's completed "as-builts" for completeness and accuracy, and, once satisfied, produce formal Project Record Documents (Drawings and an annotated Project Manual). Each sub-consultant shall produce his/her own Project Record Documents. Designer shall submit one set of Mylar reproducible, two blue line sets, one electronic set in AutoCAD, .DWF or .PDF format per the *DAPW Cad Drawing Standards*, and two project manuals. Contact the DAPW Project Manager for details.

E. The Designer shall verify that all submittals and contract closeout items (see Article XII) have been submitted and are acceptable.

F. The Contractor shall submit his/her final billing on *Invoice/Voucher* (DAPW 32) to the Designer, accompanied by *Certificate for Payment* (DAPW 18), *Final Payment Affidavit* (DAPW 21), *Surety Consent* (DAPW 20) and *Subcontractor/Supplier Final Waiver* (DAPW 156). Additional forms may be required by DAPW. The Designer shall review, certify on DAPW 18, and submit to DAPW.

G. Contractor shall submit *Subcontractor/Suppliers Final Waiver* (DAPW 156) from each subcontractor and supplier in order to receive retainage.

H. The Institution must sign and date Copy 5 of the *Purchase Order* (titled *Requesting Agency Receiving Room*, a peach-colored form sometimes referred to as the "pink receiver") and return it to the DAPW accountant so that final payment can be made. The Institution must approve the final payments for both the Designer and the Contractor contracts.

I The Designer may be asked to complete the "Contractor Evaluation Form".



### **XIII. POST-CONSTRUCTION WARRANTY REVIEW**

- A. Nine months after the Date of Substantial Completion, DAPW, the Designer, and the Institution will review the project to discover if anything needs to be corrected under the One Year Guarantee.
- B. Contractor shall correct all deficient items.
- C. The Designer shall submit a Guarantee Review Report noting that all corrections have been made to DAPW within 30 days of the review.

### **XIV. DESIGNER EVALUATION**

- A. An evaluation form has been created to provide information to Public Works and the Certification Board concerning the performance of design firms. A copy is included in the DAPW Designer Packet for review by the Designer. Comments are welcome.